SUPPORTING INFORMATION FOR

Temporal Trends of Polybrominated Diphenyl Ethers (PBDEs) in the Blood of Newborns from New York State during 1997 through 2011: Analysis of Dried Blood Spots from the Newborn Screening Program

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1. Typical Chromatograms for Standards

The typical extracted ion chromatogram of PBDE congeners in standard solution (0.05 ng/mL) by GC-HR/MS is showed in Fig. S1.

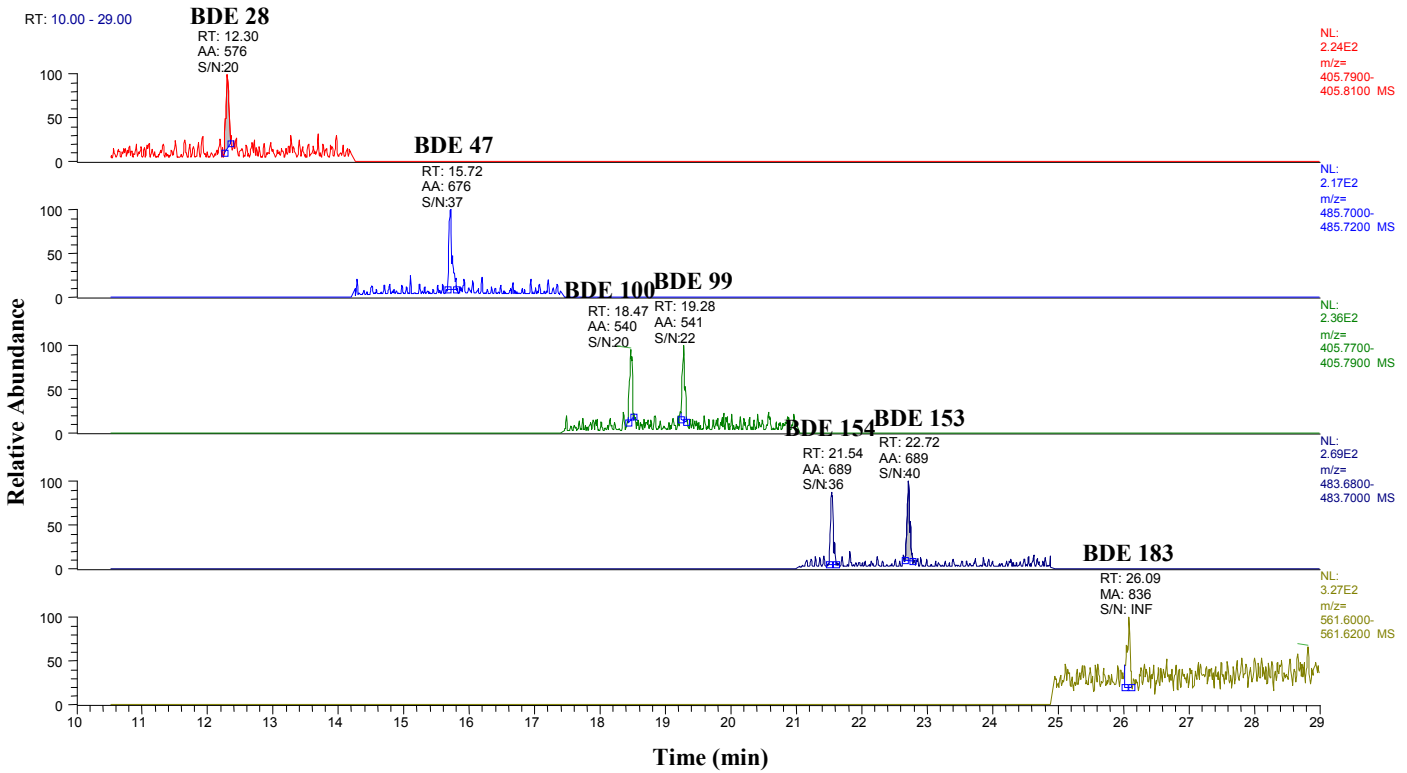

Fig. S1. Extracted ion chromatogram of PBDE congeners in standard solution (0.05 ng/mL) by GC-HR/MS

2. Correlation between PBDEs and Perfluorinated Compounds

In our previous study, pooled DBS samples from 1997 to 2007 were analyzed for perfluorooctane sulfonate (PFOS), perfluorooctane sulfonamide (PFOSA), perfluorohexane sulfonate (PFHxS), perfluorooctanoic acid (PFOA), and perfluorononanoic acid (PFNA) for assessing their temporal trend with NYS newborns [1]. There are some similar characteristics between PFCs and PBDEs, for example, they are ubiquitous in indoor environment and products, they have similar exposure pathways with general population (diet, indoor air, and house dust), and they were both phased-out in North America (2002 and 2005, respectively) [2, 3]. Thus, it is interesting to figure out whether these two kinds of compounds have the same temporal trend of exposure with newborns. The concentrations of PBDEs were selected to compare to those of PFCs from years 1997 to 2007. Correlation coefficients of these compounds are summarized in Table S1. Significant correlations were found among BDE-47, -99 and -100 ($p < 0.05$). And they were all significantly correlated with ΣPBDEs ($p < 0.01$), which was expected as they were the major congeners, accounting for 80% of ΣPBDEs. For PFCs, only PFOS were significantly correlated with PFOSA, PFHxS and PFOA ($p < 0.05$), indicating their similar exposure pathway with newborns. Between the two kinds of compounds, BDE-47 was significantly correlated with PFOS and PFOSA ($p < 0.05$), and PFOS and PFOA were significantly correlated with ΣPBDEs ($p < 0.05$). Furthermore, no obvious seasonal difference (by one-way analysis of variance) was found between the samples collected in summer and winter ($p > 0.30$) for the three major congeners and ΣPBDEs, which was consistent with those of PFCs [1]. As discussed in these two studies, both the two kinds of compounds exhibited exponential decrease since their phase-out and non-seasonal variation with concentrations obtained from pooled DBS samples with

newborns, even though their structures and applications were totally different. Our results suggested that the pooled DBS is a suitable matrice for retroactive human exposure to environmental pollutants.

Table S1. Correlation Coefficients for the Correlation of PBDEs and PFCs in Pooled DBS Samples from Newborns in NYS from 1997 to 2007

	BDE-47	BDE-99	BDE-100	ΣPBDEs	PFOS	PFOSA	PFHxS	PFOA
BDE-99	0.800*							
BDE-100	0.714*	0.865**						
ΣPBDEs	0.969**	0.886**	0.863**					
PFOS	0.743*	0.523	0.531	0.727*				
PFOSA	0.784*	0.418	0.214	0.647	0.787*			
PFHxS	0.389	0.081	0.100	0.322	0.876**	0.683		
PFOA	0.687	0.415	0.612	0.710*	0.825*	0.601	0.634	
PFNA	-0.013	-0.021	0.143	0.023	-0.047	-0.330	-0.064	0.081

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

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